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# PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): 2003P04630US

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**Fax Number: 571-273-8300**
**No. of Pages:** 9

By: **Raquel C. West** 10/22/07 **Date**

| Application Number | Filed |
|---|---|
| 10/608,284 | 06/27/2003 |

First Named Inventor: Desikachari Nadadur

| Art Unit | Examiner |
|---|---|
| 2174 | Nguyen, Le V. |

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- ☒ attorney or agent of record. Registration number 39,728
- ☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

Signature

Rosa S. Kim
Typed or printed name

650-694-5330
Telephone number

10/19-07
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

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**No. of Pages:** 9

By: **Raquel C. West** **Date** 10/22/07

Our Case No. 2003P04639US

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | | |
|---|---|---|---|
| In re Application of: | Nadadur et al. | Examiner: | Nguyen |
| Serial No.: | 10/608,284 | Group Art Unit: | 2174 |
| Filed: | June 27, 2003 | | |
| For: | Medical Image User Interface for Cardiac Imaging | | |

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants request review of the final rejection of June 20, 2007 in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reasons stated on the attached sheets. No more than five (5) pages are provided.

## I. The Proposed Combination Does Not Teach Each and Every Element in the Claims

Independent Claims 1, 17, and 27 each recite elements relating to displaying, in a first display area, a moving medical image of a beating heart comprising a sequence of image frames and displaying, in a second display area, a plurality of image frames of the sequence of image frames of the medical image acquired at end-diastolic (ED) and end-systolic (ES) portions of the beating heart's cycle. In the Office Action, it was admitted that U.S. Patent No. 6,708,055 to Geiser et al. does not teach displaying a plurality of image frames acquired at end-diastolic (ED) and end-systolic (ES) portions of a beating heart's cycle. By virtue of the prior § 102 rejection based on U.S. Patent Application Publication No. US 2003/0016852A1 to Kaufman et al. being withdrawn, the Office Action also admitted that Kaufman et al. does not disclose this element. U.S. Patent Application Publication No. US 2004/0077952 to Rafter et al. was relied upon to cure these deficiencies, but Rafter et al. also does not teach this element.

The Abstract, Figure 7A and paragraphs 89 and 93 of Rafter et al. were cited as purportedly teaching the admittedly-missing element. However, none of these cited portions teach displaying a plurality of image frames acquired at end-diastolic (ED) and end-systolic (ES) portions of a beating heart's cycle. The Abstract mentions an operator interface configured to receive an operator preference for spatially arranging a plurality of images. Paragraph 89 mentions that one of the buttons on the operator interface (the end-systolic pushbutton 761) displays images acquired at end of systole and that another button (the end-diastolic pushbutton 763) displays images acquired at end of diastole. Accordingly, Rafter et al. merely teaches the use of the end-systolic pushbutton 761 and the end-diastolic pushbutton 763 to view image frames at the ***same portion*** of the cardiac cycle — ***either*** at end of systole (when the end-systolic

pushbutton 761 is pushed) ***or*** end of diastole (when the end-diastolic pushbutton 763 is pushed). This is even how the Examiner characterizes the teaching of Rafter et al.: "it is often desirable to and useful to observe and compare multiple images of the heart at the ***same portion*** of the cardiac cycle." June 20, 2007 Office Action, page 3 (emphasis added). However, independent Claims 1, 17, and 27 each recite elements relating to displaying a plurality of image frames of the sequence of image frames acquired at ***both*** end-diastolic (ED) ***and*** end-systolic (ES) portions of the beating heart's cycle. Accordingly, while independent Claims 1, 17, and 27 recite displaying image frames acquired at ***different*** heart cycles (end-diastole ***and*** end-systole), Rafter et al. (and, hence, the proposed combination) only teaches displaying image frames acquired at the ***same*** heart cycle (***either*** end-diastole ***or*** end-systole).

In the Advisory Action, the Examiner asserted that Rafter et al. teaches displaying a plurality of systolic and diastolic images because paragraph 93 teaches that an image manager can be programmed with the flexibility to permit comparison of different parts of one loop to different parts of the same loop or another loop acquired at a certain patient condition or anatomical view. However, while paragraph 93 teaches that images from a cardiac cycle at rest can be compared to images from a cardiac cycle at peak stress, there is no teaching that one of these images is a systolic image and another is a diastolic image. It is clear from paragraph 93 and the preceding paragraphs that this passage in Rafter et al. merely teaches that the preceding concepts of displaying image frames acquired at the ***same*** heart cycle (***either*** end-diastole ***or*** end-systole) can be applied to different loops so that, for example, a systolic image taken of a heart at rest can be compared to a systolic image taken of a heart during stress. Further, although the Examiner speculated that "peak stress" refers to systole, it is clear from paragraph 93 of Rafter et al. that "peak stress" refers to a different "patient condition" — not systole.

In summary, because Rafter et al. does not cure the admitted deficiency in Geiser et al. and Kaufman et al., the proposed combination fails to render independent Claims 1, 17, and 27 unpatentable. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections against independent Claims 1, 17, and 27 and their dependent claims.

**II. Lack of Motivation to Combine Geiser et al., Rafter et al., and Kaufman et al.**

Applicants further submit that one skilled in the art would not have been motivated to combine Geiser et al., Rafter et al., and Kaufman et al. because Kaufman et al. teaches away from such a combination.

Kaufman et al. is directed to a system in which still images (or slices) of an organ are acquired and displayed. The still images are used to construct a three-dimensional composite image. With reference to the user interface in Figure 2 of Kaufman et al., the selected image 42 is a still image (or slice) of a heart, and images 56 and 58 represent the previous and next slices to be shown in area 42. The images in areas 48 and 50 are image projections of selected slices, with the image in area 48 representing a projection made from all of the slices in the image, and the image in area 50 representing a projection made from only selected image slices.

Because Kaufman et al. desires to obtain and display a still image of the heart, Kaufman et al. views heart motion as noise that will cause blurring of the image. Kaufman et al. recognizes that the blurring of an image is most likely to occur during systole, where the heart is in motion, and less likely to occur during diastole, where the heart is relatively motionless. To take advantage of these conditions, Kaufman et al. uses a gating function so as to only use the still images taken at diastole, where the heart is relatively motionless, and not at systole, where the heart is in motion. As such, Kaufman et al. teaches against the combination with Rafter et al., which was relied upon for its teaching of displaying images at systole. Under the proposed

combination, the addition of Rafter et al. would introduce the very problem that Kaufman et al. is specifically trying to avoid. Because of this, one skilled in the art would not have been motivated to combine the references as proposed in the Office Action.

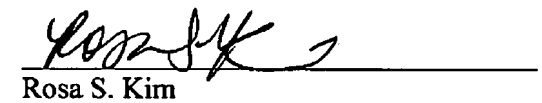
Significantly, the Advisory Action does not address Applicants' teaching away argument. Irrespective of the general and vague purported motivations proffered in the Advisory Action, the fact is that Kaufman et al. teaches against the proposed combination, and, as such, one skilled in the art would not have combined the references as proposed in the Office Action.

**III. Conclusion**

In view of the foregoing remarks, Applicants respectfully submit that this application is in condition for allowance. Reconsideration is respectfully submitted. If there are any questions, please contact Joseph F. Hetz (Reg. No. 41,070) at (312) 321-4719.

Dated: 10-19-07

Respectfully submitted,



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